Examining the Relation of EVA (Economic Additional Value) and ROE (Return on Equity) and ROA (Return of Assets) in Cement and Construction Industries in Tehran Stock Exchange Companies

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Abstract *Present study is to examine relation of EVA with ROA and ROE in the companies registered in Tehran stock exchange so 42 companies whose data were available for five years (From 2008 to 2012)by virtue of the defined limits were selected as samples. The variables to be examined in the study included EVA, ROA and ROE. The findings from data analysis and testing the hypotheses indicate there is no significant relation between EVA and ROE in cement industry, but there is a significant and negative relation in 90 percent level in construction industry. There is a significant and negative relation between EVA and ROE in cement industry in 95 percent level and in construction industry in 90 percent level, respectively.*

Key words EVA, ROE, ROA

1. Introduction

Investors are always to have high profits in shares market; they buy the shares they believe they are the best with the most profit and return so they buy and keep them. Operation assessment system is used to define how much the director's operations have been in line with the shareholders' demands namely how much the goals of both have been in the same direction and how much the directors have been able to create value and equity for the shareholders. Essentially there are traditional measures and ones based on value in order to assess the companies operation in capital market.

The traditional measures including companies' revenues, profit of each share, ROE, equity return, cash flow, etc. have been frequent in capital market for a long time and then the measures based on value were proposed to assess the companies' operation. In the former only accounting profit is focused so it is not favorable because it ignores the costs to support the companies' capital sources.

One of the newest measures based on value is the economic additional value measure so the company value depends on return and cost of the used capital; thus, the difference between the economic additional value and the traditional measures is that in the former it is attempted to take into consideration all the costs supporting financially. Considering the share value fluctuates too much in market and the rate of the capital to be invested by the company is very important this study is to examine the relation of economic additional value as a measure to assess the companies' operation beside other traditional measures with ROA and ROE in cement and construction industries in the companies registered in Tehran stock exchange.

2. Theoretical frame and literature review

Having appeared great companies and formed important subject of separating ownership from management and contradiction between great benefits of the owners and managers different sectors such as creditors, owners, government, investors and managers paid attention to assess the companies', managers' and heads' operations, but it is more important to the investors because they are not to invest in the risky companies or if they do it, more value and return are expected. So due to different reasons different groups are interested in operation assessment. There are different methods to assess operation. Accounting, market and economy data or a composition of them are used to assess the types of indexes and ratios. The investors believe that most important aspect in the operation assessment is find if the company has been able to create value namely if it has been able to increase the capital value so some measures are used to assess the management and company potentials of which the most usual ones are ROE and ROA; both of them are of the traditional measures. Another method which has been interested in recent years was EVA; preferably it emphasizes on creating or eliminating value and as an element its starting point is ROA adjustment. Economic additional value (EVA) is the measure to assess well the operation leading to the company's value increase or decrease; the measure indicates the remained profit after deducting the capital costs.

EVA is considered as a simple operation measure and presents a real image of the equity creation for the shareholders and helps the managers to take decisions to invest and know the occasions to improve and pay attention to both short – time and long – time profits. Some researches done in relation to EVA and its relation with other variables:

Gholamreza Rezaei examined the effect of relation between EVA and ROE in assessing the vehicles industry companies' operations registered in the stock exchange in Alameh University in 2001. The findings indicated that there is no significant relation between EVA and ROE; he has mentioned some reasons like above study concerning no relation between EVA and ROE.

In their study Malekian and Asghari (2006) examined EVA and ROA in line with assessing the companies' operation registered in Tehran stock exchange; for their study they chose vehicle production industry; their findings indicated there is no significant relation between EVA and ROA.

Anvarirostami *et al.* (2004) examined the relation between EVA of profit before interest and tax and cash flow of operational acts with shares market value of the companies registered in Tehran stock exchange; their findings indicated the profit before the interest and tax have more correlation with market than EVA. Noravesh *et al.* (2004) examined the relation of operational cash flows; operational profit and EVA with the equity created for the shareholders and concluded that EVA is a better index to predict the equity created for the shareholders.

Stewart (1993) compared general accounting variables with EVA. He believes EVA is more general than other measures such as profit, distributional profit, ROE and cash flow. Also he believes EVA is a strong and efficient measure to describe the companies' operation; it is stronger than general and traditional measures to describe companies' shares value. He indicated that the changes in market value of the companies selected as the samples (Specially in the additional value of their market) have a weak correlation with general accounting measures, but EVA and market additional value have the highest correlation.

Fingan (1991) analyzed and discussed about the correlation rate between EVA and assessment measures in 450 medium size companies in U.S.A.; by virtue of his comparison he concluded that EVA has more descriptive potential than other variables such as capital growth, capital return, profit of each share and cash flow. Regression findings from market additional value and other studied measures indicate EVA with 61 percent correlation compared to other measures (The capital return is 47 percent) has the highest correlation with market additional value. Also Fingan stated in relation to the changes of market additional value that EVA is stronger than other measures namely the correlation coefficient between the changes in market additional value and the changes in EVA was 44 percent.

Bakidor et al. tried to examine the correlation rate and descriptive potential of EVA and adjusted EVA in predicting and creating value for the shareholders; they collected their data from 1,000 companies from Stern Stewart association; their sample included 600 companies in 1982 – 1992. Their findings indicate the adjusted EVA has more potential and correlation to predict market value than EVA.

3. Importance and necessity of the study

ROE and ROA are of the methods assessing operation. ROE is gained by accounting profit and the latter has some deficits; for example, it influenced by computing output cash flows as current cost or equity. Also the accounting profit changes by choosing accounting methods namely management is able to make the profit congruous. ROA is equal to profit division after tax deduction by average of total equity; this is a better measure to assess profitability than sale profit margin because it shows the management efficiency to use the company equity in order to create profit after tax deduction. Some researchers believe EVA has not above deficits because of focusing on real (Cash) return of each company; besides, EVA has not complicated computations and need not more data and costs.

4. Methodology of research

The universe includes all the companies whose data are available registered for cement and construction industries in Tehran stock exchange for five years (2008–2012). Considering the data regarding only some cement and construction companies are available it is not necessary to sample and all companies in both industries are used. By virtue of the nature of the study the method is a field and bibliotheca work in a way that the data were collected by field work from financial statements with notes of 2008 – 2012 concerning the companies to be tested and having formulated and assessed the dependent and independent variables the correlation relation was assessed between EVA, ROE and ROA (Shraes price) variables by EVIEWS software by Pearson correlation coefficient.

4.1. Measuring the study variables

4.1.1. EVA functions as follows to assess

EVA= (r - c) × Capital
EVA= (r × Capital) - (c × Capital)
EVA= NOPAT - (c × Capital)
r = Capital return
c = Capital cost
Capital
NOPAT = Net Operation Profit after Tax
EVA = Economic Value Addition

4.1.2. ROE (Return on Equity):

100 x ROE mean/net profit = ROE

4.1.3. ROA:

100 x equities mean/Net profit = Equities return

5. Data analysis and hypotheses test

Before analyzing and testing the hypotheses first we examine the normal condition of primary variables so we used three Kolmogoroff – Smirnoff, Shapiro - Wilk and Jark – Bera normalization tests; the findings indicate lack of adaptation of the variables distribution to the normal distribution so first we should use valid methods to normalize the data; then by virtue of zero and negative numbers among the observations Johnson Transformation Method is performable by Minitab software. The data were normalized. Now we examine the relation of ROA and ROE variables with EVA variable in cement and construction industries by virtue of five year normalized data of the companies and by using Pearson correlation coefficient.

Zero hypotheses: There is no significant relation between EVA and ROE of the companies which are members of cement industry registered in Tehran stock exchange.

Contrast hypothesis: There is significant relation between EVA and ROE of the companies which are members of cement industry registered in Tehran stock exchange.

Correlation t-Statistic Probability	EVA	ROE
EVA	1.000000 ----- -----	-0.259 0.287 0.774
ROE	-0.259 -0.287 0.774	1.000000 ----- -----

The findings indicate the 't' statistic is 0.278 in test 1. Considering the 't' statistic (0.278) is less than the 't' of the table (1.96) and its least significance (prob) is more than 0.05 the zero test hypothesis is not refused in 95 percent level. So it is possible to claim that there is no relation between EVA and ROE in cement industry.

In continuation the study hypotheses and findings from the hypotheses are shown in related tables.

5.1. Study hypotheses

1. There is no significant relation between EVA and ROE in cement industry companies registered in Tehran stock exchange.

2. There is significant relation between EVA and ROA in cement industry companies registered in Tehran stock exchange.

3. There is no significant relation between EVA and ROE in construction industry companies registered in Tehran stock exchange.

4. There is significant relation between EVA and ROA in construction industry companies registered in Tehran stock exchange.

By virtue of Pearson correlation coefficient it is always supposed that zero hypotheses indicates lack of the relation and if it is refused, there is some statistical, significant relation between the variables.

Findings from testing the hypotheses at a glance				
Hypothesis (H)	Correlation coefficient	Student 't' statistic	Least significance	Hypothesis result
1	-0.259	0.287	0.774	Zero H acceptance
2	-0.214	-2.427	0.016	Zero H refusal
3	-0.236	-1.80	0.079	Zero H acceptance
4	-0.234	-1.78	0.0794	Zero H acceptance

A summary of the study findings	
Hypothesis	Result
1	There is no significant relation between EVA and ROE in cement industry
2	There is a negative and significant relation in 95 percent rate between EVA and ROA in cement industry
3	There is a negative and significant relation in 95 percent rate between EVA and ROE in construction industry
4	There is a negative and significant relation in 95 percent rate between EVA and ROA in construction industry

The findings from above tables indicate there is no relation between EVA and ROE, but there is significant but negative relation between them in 90 percent rate in construction industry.

There is a significant but negative relation between EVA and ROA in 95 percent rate in cement industry, but the relation is created in 90 percent rate in construction industry; of course, it is reverse and negative.

6. Conclusions

By virtue of the findings from the tested hypotheses it may be concluded that there is no relation and correlation between EVA and ROA in cement industry, but they have a significant but negative relation in 10 percent level in construction industry. The hypotheses 2 and 4 and the tests done in relation to the hypotheses indicate there is a significant but negative relation between EVA and ROE in cement and construction industries of the companies registered in Tehran stock exchange while the relation is significant in 95 and 90 percent rates in cement and construction industries, respectively.

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